

10/526109

BT01 Rec'd PCT/PTC 28 FEB 2005

## SEQUENCE LISTING

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<120> NOVEL ACTIN-RELATED CYTOSKELETAL PROTEIN  
"LACS"

<130> 082368-003100US

<150> PCT/JP03/03613

<151> 2003-03-25

<150> JP 2002-255442

<151> 2002-08-30

<160> 2

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 3302

<212> PRT

<213> Rattus rattus

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Val	Tyr	Ser	Lys	Gln	Arg	Asn	Leu	Tyr	Glu	Leu	Asn	Arg	Leu	Tyr Arg
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Pro	Ser	Ala	Gly	Thr	Glu	Glu	Asn	Thr	Glu	Lys	Ile	Pro	Glu	Leu Ala
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Glu	Asp	Ile	Glu	Lys	Gly	Asp	Val	Arg	Thr	Ala	Arg	Trp	Met	Phe Glu
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Thr	Gln	Pro	Leu	Asp	Thr	Ile	Lys	Gln	Asp	Ile	Thr	Glu	Ile	Lys Val
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Val	Arg	Gly	Ile	Ser	Met	Glu	Glu	Asn	Val	Lys	Gly	Glu	Val	Gly Arg
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Ser	Gly	Glu	Ala	Val	Leu	Lys	Thr	Glu	Ala	Val	Val	Gly	Ile	Asp Val
	595					600					605			
Ser	Lys	Lys	Cys	Trp	Met	Phe	Glu	Thr	Gln	Pro	Leu	Asp	Thr	Leu Lys
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625				630					635					640
Asp	Val	Lys	Thr	Thr	Lys	His	Leu	Leu	Glu	Thr	Leu	Pro	Ile	Glu Ala
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Leu	Lys	Asp	Ser	Pro	Asp	Val	Gly	Lys	Leu	Gln	Lys	Ile	Thr	Ala Ser
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Ile	Phe	Glu	Ser	Asn	Asn	Leu	Ile	Lys	Val	Asp	Ala	Ser	His	Gln	Ile
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Glu	Val	Glu	Gly	Val	Thr	Arg	Gly	Thr	Val	Glu	Leu	Asn	Lys	Ser	Leu
			740					745					750		
Phe	Glu	Thr	Thr	Pro	Leu	Tyr	Ala	Ile	Gln	Asp	His	Leu	Gly	Lys	Tyr
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His	Gln	Val	Lys	Thr	Val	Gln	Glu	Glu	Ile	Val	Arg	Gly	Asp	Val	
		770				775					780				
Arg	Ser	Cys	Arg	Trp	Leu	Phe	Glu	Thr	Arg	Pro	Ile	Asp	Gln	Phe	Asp
785					790					795					800
Glu	Ser	Leu	His	Lys	Phe	Gln	Ile	Ile	Arg	Gly	Ile	Ser	Ala	Gln	Glu
				805					810					815	
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			820						825				830		
Pro	Leu	Asp	Ser	Ile	Lys	Tyr	Phe	Ser	Asn	Val	Glu	Glu	Thr	Asp	Ser
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Ser	Leu	Met	Thr	Asn	Ser	Glu	Asp	Ile	His	Lys	Gly	Asp	Val	Arg	Thr
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Ile	Lys	Thr	Leu	Lys	Ile	Glu	Asp	Ile	Gln	Lys	Gly	Asn	Val	Leu	Asn
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Arg	Trp	Leu	Phe	Glu	Thr	Lys	Pro	Leu	Asp	Ser	Ile	Asn	Ala	Ser	Glu
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Ile Ser Asp Lys Ser His Asn Ile Met Pro Thr Ile Asp His Ile Gln		
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Gly Gly Asn Val Gln Met Asn Lys Gln Leu Phe Glu Ser Glu Gly Gly		
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Asp Lys Lys Asn Tyr Val Arg Thr Val Ser Ile Asn Glu Ile Gln Lys		1200
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Gly Asn Val Lys Thr Ser Thr Trp Leu Phe Glu Thr His Ser Ile Asp		
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Glu Leu Gly Glu Val Ser Thr Tyr Glu Asn Ile Lys Thr Val Thr Gln		
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Glu Asp Val Gln Lys Gly Asp Val Lys Gln Ala Val Trp Leu Phe Glu		
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Asn Gln Thr Leu Asp Ser Ile Lys Glu Leu Asp Glu Ser Asp Thr Lys		
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Ile Thr Lys Glu Glu Ile Pro Pro Ser Asp Val Lys Thr Thr Thr Trp		
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Leu Phe Glu Thr Thr Pro Ile His Glu Phe Asn Glu Thr Arg Ile Glu		
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Lys Glu Glu Ile Ile Gly Lys Ser Ile Lys Glu Thr Leu Glu Asp Leu		
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Tyr Ser Gln Arg Val Val Glu Ala Pro Gly Ile Ile Ile Glu Ala Asp		
1330	1335	1340
Glu Val Gly Asp Val Arg Met Ala Lys Tyr Lys Leu Met Asn Gln Arg		
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Thr Pro Glu Ile Gln Lys Glu Glu Val Ile Arg Ala Asp Leu Gly Asn		
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Ile Met Met Asn Leu Leu Ser Gln Arg Asp Cys Thr Lys Lys Glu Ile		
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Phe Ile Ser Glu Glu Glu Lys Gly Asn Val Asn Phe Thr Lys Thr Gln		
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Leu Leu Asn Arg Ser Met Glu Phe His Ala Glu Lys Glu Glu Ile Val		
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Arg Gly Asp Val Lys Gln Ala Ile Gln Lys Leu Phe Ser Glu Glu Arg		
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Cys Ala Lys Arg Gly Ile Leu Ile Gln Glu Asp Glu Lys Gly Asp Val		
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Asn Met Thr Ile Tyr Cys Leu Leu His Glu Asn Ala Gly Asp Lys Thr		
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Lys Arg Glu Asp Ile Leu Gly Gly Asp Val Arg Arg Thr Ile His Asn		
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Leu Leu Ser Ser Ala Ser Asn Asp Lys Ile Ser Glu Arg Thr Lys Ile		
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Asp Ala Ser Glu Arg Gly Asn Val Gln Phe Phe Thr Thr Cys Ile Glu		
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Thr Gly Ala Leu Asp Tyr Leu Lys Gln Leu Gln Thr Gly Ser Asn Glu		
1525	1530	1535
Thr Leu Thr Ala Arg Lys Gln Glu Gly Glu Glu Ile Ile Gly Gly		
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Asp Val Glu Gly Thr Lys Phe Leu Leu Lys Lys Arg Gln Ser Ser Ile		
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Glu Arg Thr Val Ser Glu Thr Asp Ile Ile Pro Gly Asp Val Arg Asn		
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Thr Val Lys Val Phe Met Thr Glu Pro Gln Ser Ala Ser Phe Lys Thr		
1585	1590	1595
		1600

Ala Lys Glu Glu Ile Val Lys Gly Asp Leu Lys Ser Thr Leu Asn Ser	1605	1610	1615
Leu Asn Gln Ala Met Asn Gln Lys Val Val Ala Lys Thr Glu Asp Ile	1620	1625	1630
Met Lys Asp Asp Lys Ala Ala Ile Leu Lys Ser Leu Lys Glu Ser Gly	1635	1640	1645
Gly Arg Gln Lys Glu His Lys Gln Ser Ala Ser Ile Ser Ser Asp Ile	1650	1655	1660
Gly Gln Ala Ile Glu Cys Leu Glu Lys Ala Thr Asn Thr Arg Thr Glu	1665	1670	1675
Ile Leu Lys Lys Glu Leu Ile Leu Asp Asp Leu Lys Thr Ser Leu Arg	1685	1690	1695
Ser Leu Lys Glu Glu Gln Tyr Ser Phe Lys Glu Val Gly Lys Gln Gly	1700	1705	1710
Met Val Lys Asp Val Leu Gly Phe Ser Glu Arg Gln Glu Leu Gly Ile	1715	1720	1725
His Pro Ala Ala Val Gln Arg Glu Lys Lys Ser Leu Leu Gln Pro Val	1730	1735	1740
Pro Gly Pro Cys Glu Pro Ala Ile Arg Gln Gln Ala Gly Pro Gly Pro	1745	1750	1755
Leu Asp Glu Ala Thr Gln Lys Ser Cys His Arg Ser Leu Thr Glu Glu	1765	1770	1775
Arg Thr Glu Ala Asn Leu Pro Lys Ala Pro Lys Gly Thr Val Lys Ile	1780	1785	1790
Val Ile Asp Arg Glu Gln Asn Asn Asp Ala Leu Glu Lys Ser Leu Arg	1795	1800	1805
Lys Met Ser Asn Ser Glu His Arg Ala Met Lys Asn Val Leu Asp Met	1810	1815	1820
Gly Asp Arg Arg Gly Val Trp Thr Glu Ser Lys Glu Cys Leu Cys Ser	1825	1830	1835
Asp Asp His Met Ser Lys Tyr Val Ser Ala Ser Met Ser Arg Lys Lys	1845	1850	1855
Ser Leu Lys Thr Lys Glu Ser Glu Asn Val Arg Glu Ser Lys Asp Asp	1860	1865	1870
Val Ser Ser Thr Gln Ser Val Asp Lys Thr Phe Arg Lys Gln Gln Thr	1875	1880	1885
Gln Asn Cys Glu Leu Gly Lys Asp His Gln Lys Ser Gln Phe Gln Asp	1890	1895	1900
Ser Tyr Ala Lys Asn Gln Lys Asn Thr Gln Asn Ile Ser Met Ser Ala	1905	1910	1915
Glu Thr Gln Ser Tyr Arg Pro Asp Pro Thr Gln His Pro Val Ser Asn	1925	1930	1935
Pro Ala Gly Glu Thr Leu Glu Met Thr Arg Asp Phe Gln Lys Gln Ala	1940	1945	1950
Leu Ile Arg Gln Glu Lys Gln Asn Ser Asn Lys Asp Met Arg Lys Asn	1955	1960	1965
Asp Met Gly Leu Gln Pro Leu Pro Val Gly Lys Asp Ala His Ser Ala	1970	1975	1980
Pro Gly Val Thr Val Ser Gly Lys Asn His Lys Arg Thr Gln Ala Pro	1985	1990	1995
Asp Lys Lys Gln Arg Ile Asp Val Cys Leu Glu Ser Gln Asp Phe Leu	2005	2010	2015
Met Lys Thr Asn Thr Ser Lys Glu Leu Lys Met Ala Met Glu Arg Ser	2020	2025	2030
Phe Asn Pro Val Asn Leu Tyr Pro Asp Cys Gly Val Lys Glu Asn Glu	2035	2040	2045
Asp Ala Leu Pro Pro Pro Ser Pro Pro Pro Pro Pro Ser Asn Ala			

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Ser Ser Glu Ile Glu Phe Pro Leu Pro Pro Pro Pro Pro Ile Met Leu		
2065	2070	2075
Leu Pro Glu Lys Asn Glu Phe Pro Pro Ser Ser Pro Thr Glu Lys Ser		2080
	2085	2090
Arg Ala Glu Leu Glu Ser Leu Pro Thr Leu Pro Leu Pro Pro Pro Pro		2095
	2100	2105
Gly Asp Glu Lys Ser Asp Gln Glu Cys Leu Pro Thr Ser Leu Pro Pro		2110
	2115	2120
Pro Pro Pro Thr Ala Pro Ser Gln Pro Ala His Leu Leu Ser Ser Ser		2125
	2130	2135
Val Leu Glu His His Ser Glu Ala Phe Leu Gln Tyr Ser Arg Lys		2140
2145	2150	2155
Glu Thr Leu Asp Ser His Gln Leu His Ser Gln Ala Lys Ile Leu Thr		2160
	2165	2170
Gly Lys Ser Pro Pro Pro Thr Leu Pro Lys Pro Lys Leu Pro Glu Arg		2175
	2180	2185
Ile Lys Ala Lys Met Ser Gln Asp Ser Pro Ser Gly Glu Leu Glu Arg		2190
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Ser Leu Ser Asp Val Glu Ile Lys Thr Thr Leu Ser Lys Asp Gln Lys		2205
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Ser Ser Leu Val Ala Glu Ser Arg Glu His Thr Glu Ala Lys Gln Glu		2220
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Val Phe Arg Lys Ser Leu Gly Arg Lys Gln Leu Ser Ile Ser Ser Ala		2240
	2245	2250
Asn Ser Leu Ser Gln Thr Val Pro Glu Ile Pro Ala Pro Lys Glu Lys		2255
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Gln Thr Ala Pro Leu Val Lys Ser His Ser Phe Pro Ser Gly Ser Glu		2270
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Gln Gln Ser Pro Lys Pro Tyr Met Arg Lys Phe Lys Thr Pro Leu Met		2285
	2290	2295
Ile Ala Glu Glu Lys Tyr Arg Gln Gln Arg Glu Glu Leu Glu Lys Gln		2300
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Arg Arg Glu Ser Ser Cys His Ser Ile Ile Lys Thr Glu Thr Gln His		2320
	2325	2330
Arg Ser Leu Ser Glu Lys Glu Lys Glu Thr Glu Leu Gln Lys Ala Ala		2335
	2340	2345
Glu Ala Met Ser Thr Pro Arg Lys Asp Ser Asp Phe Thr Arg Ala Gln		2350
	2355	2360
Pro Asn Leu Glu Pro Lys Ser Lys Ala Val Ile Ala Ser Glu Cys Ser		2365
	2370	2375
Glu Ser Gln Leu Ser Thr Ala Ser Ala Leu Thr Val Ala Thr Glu Arg		2380
2385	2390	2395
Leu Gln His Val Leu Ala Ala Ser Asp Asp Lys Leu Thr Leu Arg Arg		2400
	2405	2410
Glu Gly Thr Gln Asn Ser Ser Asp Thr Leu Gln Ser Lys Thr Ala Cys		2415
	2420	2425
Glu Ile Asn Gln Ser His Lys Glu Cys Arg Thr Glu Gln Thr Phe Glu		2430
	2435	2440
Gln His Val Glu Lys Leu Pro Phe Pro Gln Thr Lys Pro Ile Ser Pro		2445
	2450	2455
Ser Phe Lys Val Lys Thr Ile Arg Leu Pro Ala Leu Asp His Thr Leu		2460
2465	2470	2475
Thr Glu Thr Asp Leu Ser Ser Glu Arg Arg Val Lys Gln Ser Glu Ile		2480
	2485	2490
Asp Val Gln Thr Ser Thr Lys Glu Met Asn Lys Glu Ile Lys Lys Thr		2495
	2500	2505
		2510

Glu Val Ser Thr Gln Cys Asp Asn Lys Gln Ser Val Ala Glu Lys Tyr	2515	2520	2525
Phe Gln Leu Pro Lys Thr Glu Lys Arg Val Thr Val Gln Met Pro Lys	2530	2535	2540
Asp Tyr Ala Ala Lys Ser His Gln Ser Lys Leu Gln Thr Val Pro Lys	2545	2550	2555
Lys His Gly Gly Leu Gly Glu Phe Asp Arg Gly Asn Val Leu Gly Arg	2565	2570	2575
Glu Gly Lys Asn Gln Asp Ser Ser Met Ser Ser Thr Lys Glu Ser Arg	2580	2585	2590
Val Ile Val Glu Arg Lys Gln Glu His Leu Gln Asp Gln Ser Val Pro	2595	2600	2605
Arg Leu Val Gln Gln Lys Ile Ile Gly Glu Ser Leu Asp Ser Arg Val	2610	2615	2620
Gln Asn Phe Gln Gln Thr Gln Thr Gln Thr Ser Arg Ile Glu His Lys	2625	2630	2635
Glu Leu Ser Gln Pro Tyr Ser Glu Lys Lys Cys Leu Arg Asp Lys Asp	2645	2650	2655
Lys Gln Gln Lys Gln Val Ser Ser Asn Thr Asp Asp Ser Lys Gln Glu	2660	2665	2670
Ile Thr Gln Lys Gln Ser Ser Phe Ser Ser Val Arg Glu Ser Gln Gln	2675	2680	2685
Asp Gly Glu Lys Cys Ala Ile Asn Ile Leu Glu Phe Leu Arg Lys Arg	2690	2695	2700
Glu Glu Leu Gln Gln Ile Leu Ser Arg Val Lys Gln Phe Glu Ala Asp	2705	2710	2715
Ser Asn Lys Ser Gly Leu Lys Thr Phe Gln Thr Leu Leu Asn Ile Ala	2725	2730	2735
Pro Val Trp Leu Ile Ser Glu Glu Lys Arg Glu Tyr Gly Val Arg Val	2740	2745	2750
Ala Met Glu Asn Asn Leu Glu Lys Val Lys Glu Glu Ile Ile His Ile	2755	2760	2765
Lys Thr Gln Ala Glu Glu Met Leu Val His Cys Glu His Val Ile Arg	2770	2775	2780
Thr Ala Met Met Ala Ser Gln Thr Gly Lys Gln Lys Asp Lys Pro Thr	2785	2790	2795
Asn Leu Asn Glu Met Pro Leu Lys Val Ser Asn Val Asn Leu Ser Ser	2805	2810	2815
His Lys Gly Thr Glu Gln Lys Glu Ser Lys Ile Val Glu Glu Lys Leu	2820	2825	2830
Ala Ser Arg Gln Val Ala Thr His Ser Glu Ala Ala Thr His Asn Pro	2835	2840	2845
Ala Lys Thr Tyr Gln Glu Ala Lys Gly Asp Asp Ser Lys Met Ala Pro	2850	2855	2860
Pro Ser Leu Lys Thr Arg Pro Pro Ser Pro Thr Phe Ile Thr Ile Glu	2865	2870	2875
Ser Thr Ala Arg Arg Ala Glu Thr Ser Thr Lys Ser Glu Leu Ser Gln	2885	2890	2895
Ser Pro Lys Asn Ser Cys Val Glu Pro Leu Pro Arg Arg Pro Met	2900	2905	2910
Glu His Thr Ser Arg Leu Pro Arg Thr Ser Thr Ser Pro Ser Pro Pro	2915	2920	2925
Arg Ser Arg Ser Glu Gln Leu Val Arg Leu Lys Asp Thr Thr Ala Arg	2930	2935	2940
Leu Ala Lys Gly Thr Ile Pro Cys Ser Pro Gly Thr Pro Val Pro Val	2945	2950	2955
Val Glu Lys Arg Ser Glu Val Val Met Ser Pro Ala Thr Leu Arg Arg			

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Gln Ile Lys	Ile Glu Ser Arg Gly	Gly Asp Ser Pro Pro	Thr Ile Thr		
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Ile Pro Val	Ser Val Asn His His	Val Val Ser Gly Ser	Phe Arg Glu		
	2995		3000		3005
Ser Val Asp	Ala Gln Glu Ala Val	Lys Lys Thr Glu Lys	Thr Glu Thr		
	3010		3015		3020
Tyr Val His	Lys Asp Lys Lys Asn Ser	Val Ser Ser Ala Met	Pro Glu		
	3025		3030		3035
Thr Glu Ser	Tyr Asp Ala Val Glu	Ile Ile Arg Lys Val	Glu Gly Pro		
		3045	3050		3055
His Leu Ser	Glu His Arg Glu Arg	Phe Glu Ala Thr	Asn Gln Thr	Val	
	3060		3065		3070
Gln Met Ala	Glu His Phe Leu Asn	Gly His Glu Asn	Glu Val Asn	Arg	
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Trp Phe Arg	Glu Phe Glu Asn Gly	Pro Val Phe Gly	Ala Lys Thr	Glu	
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Arg Arg Ala	Tyr Ala Asn Gly Glu	Ile Asn His Asn	Met Lys Gln	Glu	
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Ser His Thr	Phe Cys Lys Glu Glu	Phe Gly Leu Glu	Ser Ser Glu	Thr	
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Ala Asn Phe	Thr Gly Phe Ser Tyr	Arg His Pro Arg	Glu His Arg	Ala	
	3140		3145		3150
Lys Ala Pro	Ala Thr Gln Pro Arg	Val His Ser Glu	Ala Arg Ala	Leu	
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